

Canon Paleo Curriculum
Unit: The Nature of Science
Lesson Plan 7

Testing a Hypothesis

Activity Name: Fortune Teller Fish

Supplies:

One cellophane fish from game supplier
Activity sheets
Charts for experiment

Preparation:

Copy Fish Observation Worksheet
Copy Setting Up an Experiment Worksheet
Purchase Fortune-Telling Fish in advance
Set up heat sources and moisture sources
Supplies: desk lamp, water pans (hot and cold), rubber gloves, paper towel, petri dishes.

Have students fill out the Fish Observation worksheet. When they have formed an hypothesis have them start their Setting Up an Experiment Worksheet and procede to experiment stations. Have students do control station first.

Test Stations

Control station: Fish laying on a paper towel in a dish for 30 seconds and document results

Variable stations, have students choose one or two based on their hypothesis:

Student puts on rubber glove and lays fish in their palm for 30 seconds, measure temperature of palm with glove and document results.

Student puts fish in a dish on top of paper towel soaked in cold water for 30 seconds, measure temperature of towel and document results.

Student puts fish in a dish on top of paper towel soaked in hot water for 30 seconds, measure temperature of towel and document results.

Student puts fish in a dish on top of a dry paper towel under the desk lamp at 14 inches distance for 30 seconds, measure temperature of towel and document results.

Concept:

Students will learn observation skills, how to form their individual hypothesis, and how to test the hypothesis. Students will learn to design an experiment. They will set up the VARIABLE, the EXPERIMENTAL GROUP, and the CONTROL group.

Activity:

Have the student complete step 1 and step 2 of the worksheet on their own
Talk about step 3 and 4 and have them write down their testable hypothesis
Have the class read and discuss 5 and 6
Have them outline how they will conduct their experiment
Have them follow their outline
Conduct their experiments
Share the results

Conclusions:

Go over the **Fish Observation** and **Setting Up an Experiment** Worksheets with the students. Compare their hypothesis with their conclusions.

The fish will curl with heat and moisture.

Time: 2 hours

Name _____

Class _____

Date _____



Fish Observation Sheet

Supplies: Fortune Teller Fish (these can be ordered from GTA, Inc., 14650 28th Ave. , Plymouth, MN, 55447 and cost approximately \$7.00 per gross, phone 800-328-1226), ice, hot plate, gooseneck lamp, water source, aluminum foil, saran wrap and any other things that students would like to include in their experiment.

Procedure:

1. Remove the red cellophane “Fortune Telling” Fish from the small plastic envelope.

Observations:

Personality:

2. Follow the directions on the back of the package and watch the fish in your hand for at least 30 seconds. Write down your observations and what the envelope says about your personality.

3. One criteria of science is that there is a NATURAL explanation for the observations. This means that we cannot use a “miracle” or other supernatural events to explain the fish’s movements.

4. Share your results with other members of your group and form at least two

Hypothesis 1:

Hypothesis 2:

hypotheses to account for the fish's behavior. In science, it must be a TESTABLE hypothesis. This means that we should be able to design an experiment to see whether or not your hypothesis is valid.

5. The item being tested in the experiment is called the VARIABLE, the untested comparison group is called the CONTROL. A good experimental design will only test one variable at a time.

6. Design a simple experiment that will test your hypothesis. Your experiment should have an EXPERIMENTAL GROUP and a CONTROL GROUP. Explain your experiment below and identify which group is the experimental group and which is the control. List the materials that you will need to conduct your experiment.

Name _____

Class _____

Date _____

Setting Up An Experiment

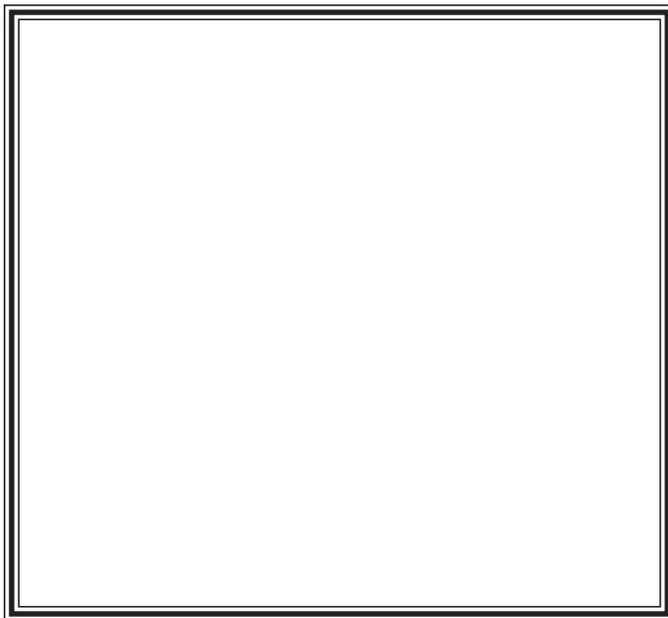
1. Question you are exploring: _____

2. Idea (hypothesis) you are testing: _____

3. What variables will you change in your experiment? _____

4. What variables will remain constant in your experiment? _____

5. Make a sketch of the set-up for your experiment. Label all materials and state all conditions. List the materials you need.



Materials Needed for your experiment: _____

6. During the experiment:

a: What specific things will you observe? _____

b: What measurements will you make? _____

c: What plan do you have for recording your data? _____

7. Sketch a sample data table for your experiment:

Fortune Telling Fish and Experiment – Key for Teachers

This lab will vary from group to groups. After lab is complete have class come back together as a group and develop the data collected for the best conclusion. Grades should be based on thorough collection of data and the conclusions reached by individual groups.

The observations and inferences should clearly fit into their defined categories. Hypotheses should be based on these observations and inferences and findings should be supported in their conclusions even if their hypothesis is disproven.